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Search Results - Record(s) 1 through 18 of 18 returned.

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1. Document ID: US 20030175778 A1

L12: Entry 1 of 18 File: PGPB Sep 18, 2003

PGPUB-DOCUMENT-NUMBER: 20030175778
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030175778 A1

TITLE: Interferon Receptor HKAEF92

PUBLICATION-DATE: September 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ni, Jian	Germantown	MD	US	
Ruben, Steven M.	Brookeville	MD	US	

US-CL-CURRENT: 435/6; 435/320.1, 435/325, 435/69.1, 530/350, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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2. Document ID: US 20030129589 A1

L12: Entry 2 of 18 File: PGPB Jul 10, 2003

PGPUB-DOCUMENT-NUMBER: 20030129589
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030129589 A1

TITLE: DNA DIAGNOSTICS BASED ON MASS SPECTROMETRY

PUBLICATION-DATE: July 10, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
KOSTER, HUBERT	LA JOLLA	CA	US	
LOUGH, DAVID M.	BERWICKSHIRE	CA	GB	
XIANG, GOUBING	SAN DIEGO		US	

US-CL-CURRENT: 435/6; 422/68.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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3. Document ID: US 20030114371 A1

L12: Entry 3 of 18 File: PGPB Jun 19, 2003

PGPUB-DOCUMENT-NUMBER: 20030114371
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030114371 A1

TITLE: Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM3

PUBLICATION-DATE: June 19, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Feder, John N.	Belle Mead	NJ	US	
Lee, Liana	North Brunswick	NJ	US	
Chen, Jian	Princeton	NJ	US	
Jackson, Donald	Lawrenceville	NJ	US	
Ramanathan, Chandra S.	Wallingford	CT	US	
Siemers, Nathan O.	Pennington	NJ	US	
Chang, Han	Princeton Junction	NJ	US	
Ryseck, Rolf-Peter	Ewing	NJ	US	
Watson, Andrew J.	West Windsor	NJ	US	
Carroll, Pamela	Princeton	NJ	US	

US-CL-CURRENT: 514/12; 435/320.1, 435/325, 435/69.1, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

4. Document ID: US 20030104487 A1

L12: Entry 4 of 18 File: PGPB Jun 5, 2003

PGPUB-DOCUMENT-NUMBER: 20030104487
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030104487 A1

TITLE: Neuropeptide receptor and uses thereof

PUBLICATION-DATE: June 5, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Fidock, Mark D.	Sandwich		GB	
Robas, Nicola M.	Sandwich		GB	

US-CL-CURRENT: 435/7.2; 424/94.64

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

5. Document ID: US 20030036505 A1

L12: Entry 5 of 18 File: PGPB Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030036505
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030036505 A1

TITLE: Signal transduction pathway component polynucleotides, polypeptides, antibodies and methods based thereon

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Barash, Steven C.	Rockville	MD	US	
Ni, Jian	Germantown	MD	US	
Ruben, Steven M.	Olney	MD	US	
Rosen, Craig A.	Laytonsville	MD	US	
Young, Paul E.	Berkeley	CA	US	
Rohrschneider, Larry R.	Seattle	WA	US	

US-CL-CURRENT: 514/12; 435/320.1, 435/325, 435/6, 435/69.1, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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6. Document ID: US 20030032786 A1

L12: Entry 6 of 18 File: PGPB Feb 13, 2003

PGPUB-DOCUMENT-NUMBER: 20030032786
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030032786 A1

TITLE: Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM2

PUBLICATION-DATE: February 13, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Chang, Han	Princeton Junction	NY	US	
Chen, Jian	Princeton	NJ	US	
Feder, John	Belle Mead	NJ	US	
Jackson, Donald	Lawrenceville	NJ	US	
Lee, Liana	North Brunswick	NJ	US	
Ramanathan, Chandra S.	Wallingford	CT	US	
Siemers, Nathan O.	Pennington	NJ	US	
Carroll, Pamela	Princeton	NJ	US	

US-CL-CURRENT: 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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7. Document ID: US 20020187950 A1

L12: Entry 7 of 18 File: PGPB Dec 12, 2002

PGPUB-DOCUMENT-NUMBER: 20020187950
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020187950 A1

TITLE: Keratinocyte derived interferon

PUBLICATION-DATE: December 12, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
LaFleur, David W.	Washington	DC	US	
Moore, Paul A.	Germantown	MD	US	
Ruben, Steven M.	Olney	MD	US	

US-CL-CURRENT: 514/44; 424/85.5, 435/320.1, 435/325, 435/69.51, 530/351, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

8. Document ID: US 20020042112 A1

L12: Entry 8 of 18 File: PGPB Apr 11, 2002

PGPUB-DOCUMENT-NUMBER: 20020042112
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020042112 A1

TITLE: DNA DIAGNOSTICS BASED ON MASS SPECTROMETRY

PUBLICATION-DATE: April 11, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
KOSTER, HUBERT	LA JOLLA	CA	US	
LITTLE, DANIEL P.	BOSTON	MA	US	
BRAUN, ANDREAS	SAN DIEGO	CA	US	
LOUGH, DAVID M.	BERWICKSHIRE	CA	GB	
XIANG, GUOBING	SAN DIEGO		US	
VAN DEN BOOM, DIRK	HAMBURG		DE	
JURINKE, CHRISTIAN	HAMBURG		DE	
RUPPERT, ANDREAS	LINDEN		DE	

US-CL-CURRENT: 435/174; 435/6, 435/91.53, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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9. Document ID: US 20020016395 A1

L12: Entry 9 of 18 File: PGPB Feb 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020016395
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020016395 A1

TITLE: Polyacetal block copolymer

PUBLICATION-DATE: February 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Niino, Masahiko	Sodegaura-shi		JP	
Nakamura, Hideki	Kurashiki-shi		JP	
Komatsu, Sumio	Kurashiki-shi		JP	

US-CL-CURRENT: 524/394; 524/494

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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10. Document ID: US 20010022982 A1

L12: Entry 10 of 18 File: PGPB Sep 20, 2001

PGPUB-DOCUMENT-NUMBER: 20010022982
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010022982 A1

TITLE: Apparatus for making multilayer optical films

PUBLICATION-DATE: September 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Neavin, Terence D.	St. Paul	MN	US	
Ouderkirk, Andrew J.	Woodbury	MN	US	
Biegler, Robert M.	Woodbury	MN	US	
Liu, Yaoqi J.	Maplewood	MN	US	

US-CL-CURRENT: 425/133.5; 425/378.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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11. Document ID: US 20010019182 A1

L12: Entry 11 of 18 File: PGPB Sep 6, 2001

PGPUB-DOCUMENT-NUMBER: 20010019182
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010019182 A1

TITLE: Method for making copen/pmma multilayer optical films

PUBLICATION-DATE: September 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Hebrink, Timothy J.	Oakdale	MN	US	
Liu, Yaoqi J.	Maplewood	MN	US	
Merrill, William Ward	White Bear Lake	MN	US	
Nerad, Bruce A.	Oakdale	MN	US	
Wheatley, John A.	Lake Elmo	MN	US	

US-CL-CURRENT: 264/1.6; 264/1.7, 264/173.14, 264/173.19

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments
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12. Document ID: US 20010013668 A1

L12: Entry 12 of 18 File: PGPB Aug 16, 2001

PGPUB-DOCUMENT-NUMBER: 20010013668
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010013668 A1

TITLE: Method for making multilayer optical films

PUBLICATION-DATE: August 16, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Neavin, Terence D.	St. Paul	MN	US	
Ouderkirk, Andrew J.	Woodbury	MN	US	
Liu, Yaoqi J.	Maplewood	MN	US	

US-CL-CURRENT: 264/1.7; 264/173.16, 425/131.1, 425/378.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments
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13. Document ID: US 20010011779 A1

L12: Entry 13 of 18 File: PGPB Aug 9, 2001

PGPUB-DOCUMENT-NUMBER: 20010011779
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010011779 A1

TITLE: Method for making textured multilayer optical films

PUBLICATION-DATE: August 9, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Stover, Carl A.	St. Paul	MN	US	

US-CL-CURRENT: 264/1.7; 264/167, 264/173.16

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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14. Document ID: US 6482517 B1

L12: Entry 14 of 18 File: USPT Nov 19, 2002

US-PAT-NO: 6482517
DOCUMENT-IDENTIFIER: US 6482517 B1

TITLE: Coated particles, methods of making and using

DATE-ISSUED: November 19, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Anderson; David M.	Petersburg	VA		

US-CL-CURRENT: 428/402.24; 424/422, 424/426, 424/450

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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15. Document ID: US 6472512 B1

L12: Entry 15 of 18 File: USPT Oct 29, 2002

US-PAT-NO: 6472512
DOCUMENT-IDENTIFIER: US 6472512 B1

TITLE: Keratinocyte derived interferon

DATE-ISSUED: October 29, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
LaFleur; David W.	Washington	DC		
Moore; Paul A.	Germantown	MD		
Ruben; Steven M.	Olney	MD		

US-CL-CURRENT: 530/388.2; 435/331, 435/335, 435/7.92, 530/388.15, 530/389.2, 530/391.3

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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16. Document ID: US 6433145 B1

L12: Entry 16 of 18 File: USPT Aug 13, 2002

US-PAT-NO: 6433145
DOCUMENT-IDENTIFIER: US 6433145 B1
**** See image for Certificate of Correction ****

TITLE: Keratinocyte derived interferon

DATE-ISSUED: August 13, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
LaFleur; David W.	Washington	DC		
Moore; Paul A.	Germantown	MD		
Ruben; Steven M.	Olney	MD		

US-CL-CURRENT: 530/351; 424/85.4, 435/7.1, 530/350

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

17. Document ID: US 5871805 A

L12: Entry 17 of 18 File: USPT Feb 16, 1999

US-PAT-NO: 5871805
DOCUMENT-IDENTIFIER: US 5871805 A

TITLE: Computer controlled vapor deposition processes

DATE-ISSUED: February 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lemelson; Jerome	Incline Village	NV	89450	

US-CL-CURRENT: 427/8; 427/10, 427/248.1, 427/255.5, 427/585, 427/596, 427/9

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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18. Document ID: US 5568400 A

L12: Entry 18 of 18 File: USPT Oct 22, 1996

US-PAT-NO: 5568400
DOCUMENT-IDENTIFIER: US 5568400 A

TITLE: Multiplicative signal correction method and apparatus

DATE-ISSUED: October 22, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stark; Edward W.	New York	NY	10023	
Martens; Harald	Aas			NO

US-CL-CURRENT: 702/85; 702/27

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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Term	Documents
MOTION	736720
MOTIONS	66345
MOVEMENT	1808147
MOVEMENTS	226600
MOV$3	0
MOV	3438
MOVA	135
MOVAB	35
MOVABE	53
MOVABL	41
MOVABS	1
(L11 AND (MOTION OR MOVEMENT OR MOV$3)).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	18

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Search Results - Record(s) 1 through 9 of 9 returned.

☐ 1. Document ID: US 20020163335 A1 Nov 7, 2002

L14: Entry 1 of 9 File: PGPB

PGPUB-DOCUMENT-NUMBER: 20020163335
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020163335 A1

TITLE: Method and apparatus for nuclear magnetic resonance measuring while drilling

PUBLICATION-DATE: November 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Prammer, Manfred G.	Downingtown	PA	US	
Dudley, James H.	Downingtown	PA	US	
Masak, Peter	West Chester	PA	US	
Goodman, George D.	Phoenixville	PA	US	
Morys, Marian	Downingtown	PA	US	
Jones, Dale A.	Houston	TX	US	
Bartel, Roger P.	Houston	TX	US	
Chen, Chen-Kang David	Houston	TX	US	
Larronde, Michael L.	Houston	TX	US	
Rodney, Paul F.	Spring	TX	US	
Smaardyk, John E.	Houston	TX	US	

US-CL-CURRENT: 324/303

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KMC | Draw Desc | Image

☐ 2. Document ID: US 20010045829 A1 Nov 29, 2001

L14: Entry 2 of 9 File: PGPB

PGPUB-DOCUMENT-NUMBER: 20010045829
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010045829 A1

TITLE: Method and apparatus for nuclear magnetic resonance measuring while drilling

PUBLICATION-DATE: November 29, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Prammer, Manfred G.	Downingtown	PA	US	
Dudley, James H.	Downingtown	PA	US	
Masak, Peter	West Chester	PA	US	
Goodman, George D.	Phoenixville	PA	US	
Morys, Marian	Downingtown	PA	US	
Jones, Dale A.	Houston	TX	US	
Bartel, Roger P.	Houston	TX	US	
Chen, Chen-Kang David	Houston	TX	US	
Larronde, Michael L.	Houston	TX	US	
Rodney, Paul F.	Spring	TX	US	
Smaardyk, John E.	Houston	TX	US	

US-CL-CURRENT: 324/303

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

3. Document ID: US 6583621 B2

L14: Entry 3 of 9 File: USPT Jun 24, 2003

US-PAT-NO: 6583621
DOCUMENT-IDENTIFIER: US 6583621 B2

TITLE: Method and apparatus for nuclear magnetic resonance measuring while drilling

DATE-ISSUED: June 24, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Prammer; Manfred G.	Downingtown	PA		
Dudley; James H.	Downingtown	PA		
Masak; Peter	West Chester	PA		
Goodman; George D.	Phoenixville	PA		
Morys; Marian	Downingtown	PA		
Jones; Dale A.	Houston	TX		
Bartel; Roger P.	Houston	TX		
Chen; Chen-Kang David	Houston	TX		
Larronde; Michael L.	Houston	TX		
Rodney; Paul F.	Spring	TX		
Smaardyk; John E.	Houston	TX		

US-CL-CURRENT: 324/303; 324/300

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

4. Document ID: US 6362619 B1

L14: Entry 4 of 9 File: USPT Mar 26, 2002

US-PAT-NO: 6362619
DOCUMENT-IDENTIFIER: US 6362619 B1

TITLE: Method and apparatus for nuclear magnetic resonance measuring while drilling

DATE-ISSUED: March 26, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Prammer; Manfred G.	Downingtown	PA		
Dudley; James H.	Downingtown	PA		
Masak; Peter	West Chester	PA		
Goodman; George D.	Phoenixville	PA		
Morys; Marian	Downingtown	PA		
Jones; Dale A.	Houston	TX		
Bartel; Roger P.	Houston	TX		
Chen; Chen-Kang David	Houston	TX		
Larronde; Michael L.	Houston	TX		
Rodney; Paul F.	Spring	TX		
Smaardyk; John E.	Houston	TX		

US-CL-CURRENT: 324/303; 324/300, 324/309

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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5. Document ID: US 6268726 B1

L14: Entry 5 of 9 File: USPT Jul 31, 2001

US-PAT-NO: 6268726
DOCUMENT-IDENTIFIER: US 6268726 B1

TITLE: Method and apparatus for nuclear magnetic resonance measuring while drilling

DATE-ISSUED: July 31, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Prammer; Manfred G.	Downingtown	PA		
Dudley; James H.	Downingtown	PA		
Masak; Peter	West Chester	PA		
Goodman; George D.	Phoenixville	PA		
Morys; Marian	Downingtown	PA		
Jones; Dale A.	Houston	TX		
Bartel; Roger P.	Houston	TX		
Chen; Chen-Kang David	Houston	TX		
Larronde; Michael L.	Houston	TX		
Rodney; Paul F.	Spring	TX		
Smaardyk; John E.	Houston	TX		

US-CL-CURRENT: 324/303; 324/300, 324/309

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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6. Document ID: US 5619140 A

L14: Entry 6 of 9 File: USPT Apr 8, 1997

US-PAT-NO: 5619140
DOCUMENT-IDENTIFIER: US 5619140 A

TITLE: Method of making nuclear magnetic resonance probe coil

DATE-ISSUED: April 8, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brey; William W.	Sunnyvale	CA		
Johansson; Marie E.	Palo Alto	CA		
Withers; Richard S.	Sunnyvale	CA		

US-CL-CURRENT: 324/318; 29/593

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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7. Document ID: US 5594342 A

L14: Entry 7 of 9 File: USPT Jan 14, 1997

US-PAT-NO: 5594342
DOCUMENT-IDENTIFIER: US 5594342 A

TITLE: Nuclear magnetic resonance probe coil with enhanced current-carrying capability

DATE-ISSUED: January 14, 1997

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brey; William W.	Sunnyvale	CA		
Withers; Richard S.	Sunnyvale	CA		

US-CL-CURRENT: 324/322; 324/318

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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8. Document ID: US 5565778 A

L14: Entry 8 of 9 File: USPT Oct 15, 1996

US-PAT-NO: 5565778
DOCUMENT-IDENTIFIER: US 5565778 A

TITLE: Nuclear magnetic resonance probe coil

DATE-ISSUED: October 15, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Brey; William W.	Sunnyvale	CA		
Anderson; Weston A.	Palo Alto	CA		
Wong; Wai H.	Monterey Park	CA		
Fuks; Luiz F.	Fremont	CA		
Kotsubo; Vincent Y.	Sunnyvale	CA		
Withers; Richard S.	Sunnyvale	CA		

US-CL-CURRENT: 324/318; 324/322

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
Draw Desc | Image

9. Document ID: US 5284144 A

L14: Entry 9 of 9 File: USPT Feb 8, 1994

US-PAT-NO: 5284144
DOCUMENT-IDENTIFIER: US 5284144 A

TITLE: Apparatus for hyperthermia treatment of cancer

DATE-ISSUED: February 8, 1994

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Delannoy; Jose	Monsen Baroeul			FR
Le Bihan; Denis	Rockville	MD		
Chen; Ching-nien	Catonsville	MD		
Levin; Ronald L.	Olney	MD		
Turner; Robert	Bethesda	MD		

US-CL-CURRENT: 600/412; 324/315, 600/422, 607/154

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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Term	Documents
(13 AND 10).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	9
(L13 AND L10).USPT,PGPB,JPAB,EPAB,DWPI,TDBD.	9

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Search Results - Record(s) 1 through 21 of 21 returned.

☐ 1. Document ID: US 20030175778 A1

L11: Entry 1 of 21 File: PGPB Sep 18, 2003

PGPUB-DOCUMENT-NUMBER: 20030175778
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030175778 A1

TITLE: Interferon Receptor HKAEF92

PUBLICATION-DATE: September 18, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ni, Jian	Germantown	MD	US	
Ruben, Steven M.	Brookeville	MD	US	

US-CL-CURRENT: 435/6; 435/320.1, 435/325, 435/69.1, 530/350, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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☐ 2. Document ID: US 20030162251 A1

L11: Entry 2 of 21 File: PGPB Aug 28, 2003

PGPUB-DOCUMENT-NUMBER: 20030162251
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030162251 A1

TITLE: Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM8

PUBLICATION-DATE: August 28, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Feder, John N.	Belle Mead	NJ	US	
Lee, Liana M.	North Brunswick	NJ	US	
Chang, Han	Princeton Junction	NJ	US	

US-CL-CURRENT: 435/69.1; 435/320.1, 435/325, 435/6, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

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3. Document ID: US 20030129589 A1

L11: Entry 3 of 21 File: PGPB Jul 10, 2003

PGPUB-DOCUMENT-NUMBER: 20030129589
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030129589 A1

TITLE: DNA DIAGNOSTICS BASED ON MASS SPECTROMETRY

PUBLICATION-DATE: July 10, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
KOSTER, HUBERT	LA JOLLA	CA	US	
LOUGH, DAVID M.	BERWICKSHIRE	CA	GB	
XIANG, GOUBING	SAN DIEGO		US	

US-CL-CURRENT: 435/6; 422/68.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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4. Document ID: US 20030114371 A1

L11: Entry 4 of 21 File: PGPB Jun 19, 2003

PGPUB-DOCUMENT-NUMBER: 20030114371
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030114371 A1

TITLE: Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM3

PUBLICATION-DATE: June 19, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Feder, John N.	Belle Mead	NJ	US	
Lee, Liana	North Brunswick	NJ	US	
Chen, Jian	Princeton	NJ	US	
Jackson, Donald	Lawrenceville	NJ	US	
Ramanathan, Chandra S.	Wallingford	CT	US	
Siemers, Nathan O.	Pennington	NJ	US	
Chang, Han	Princeton Junction	NJ	US	
Ryseck, Rolf-Peter	Ewing	NJ	US	
Watson, Andrew J.	West Windsor	NJ	US	
Carroll, Pamela	Princeton	NJ	US	

US-CL-CURRENT: 514/12; 435/320.1, 435/325, 435/69.1, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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5. Document ID: US 20030104487 A1

L11: Entry 5 of 21 File: PGPB Jun 5, 2003

PGPUB-DOCUMENT-NUMBER: 20030104487
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030104487 A1

TITLE: Neuropeptide receptor and uses thereof

PUBLICATION-DATE: June 5, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Fidock, Mark D.	Sandwich		GB	
Robas, Nicola M.	Sandwich		GB	

US-CL-CURRENT: 435/7.2; 424/94.64

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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6. Document ID: US 20030054989 A1

L11: Entry 6 of 21 File: PGPB Mar 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030054989
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030054989 A1

TITLE: Polynucleotide encoding two novel human potassium channel beta-subunits, K+betaM4 and K+betaM5

PUBLICATION-DATE: March 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Feder, John N.	Belle Mead	NJ	US	
Lee, Liana	North Brunswick	NJ	US	
Chen, Jian	Princeton	NJ	US	
Jackson, Donald	Lawrenceville	NJ	US	
Ramanathan, Chandra S.	Wallingford	CT	US	
Siemers, Nathan O.	Pennington	NJ	US	
Chang, Han	Princeton Junction	NJ	US	
Carroll, Pamela	Princeton	NJ	US	

US-CL-CURRENT: 514/12; 435/320.1, 435/325, 435/69.1, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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7. Document ID: US 20030036505 A1

L11: Entry 7 of 21 File: PGPB Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030036505
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030036505 A1

TITLE: Signal transduction pathway component polynucleotides, polypeptides, antibodies and methods based thereon

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Barash, Steven C.	Rockville	MD	US	
Ni, Jian	Germantown	MD	US	
Ruben, Steven M.	Olney	MD	US	
Rosen, Craig A.	Laytonsville	MD	US	
Young, Paul E.	Berkeley	CA	US	
Rohrschneider, Larry R.	Seattle	WA	US	

US-CL-CURRENT: 514/12; 435/320.1, 435/325, 435/6, 435/69.1, 530/350, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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8. Document ID: US 20030036115 A1

L11: Entry 8 of 21 File: PGPB Feb 20, 2003

PGPUB-DOCUMENT-NUMBER: 20030036115
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030036115 A1

TITLE: Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM6, expressed highly in the small intestine

PUBLICATION-DATE: February 20, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Feder, John N.	Belle Mead	NJ	US	
Lee, Liana	North Brunswick	NJ	US	
Chen, Jian	Princeton	NJ	US	
Jackson, Donald	Lawrenceville	NJ	US	
Ramanathan, Chandra S.	Wallingford	CT	US	
Siemers, Nathan O.	Pennington	NJ	US	
Chang, Han	Princeton Junction	NJ	US	

US-CL-CURRENT: 435/69.1; 435/320.1, 435/325, 530/350, 536/23.2

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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9. Document ID: US 20030032786 A1

L11: Entry 9 of 21 File: PGPB Feb 13, 2003

PGPUB-DOCUMENT-NUMBER: 20030032786
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030032786 A1

TITLE: Polynucleotide encoding a novel human potassium channel beta-subunit, K+betaM2

PUBLICATION-DATE: February 13, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Chang, Han	Princeton Junction	NY	US	
Chen, Jian	Princeton	NJ	US	
Feder, John	Belle Mead	NJ	US	
Jackson, Donald	Lawrenceville	NJ	US	
Lee, Liana	North Brunswick	NJ	US	
Ramanathan, Chandra S.	Wallingford	CT	US	
Siemers, Nathan O.	Pennington	NJ	US	
Carroll, Pamela	Princeton	NJ	US	

US-CL-CURRENT: 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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10. Document ID: US 20020187950 A1

L11: Entry 10 of 21 File: PGPB Dec 12, 2002

PGPUB-DOCUMENT-NUMBER: 20020187950
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020187950 A1

TITLE: Keratinocyte derived interferon

PUBLICATION-DATE: December 12, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
LaFleur, David W.	Washington	DC	US	
Moore, Paul A.	Germantown	MD	US	
Ruben, Steven M.	Olney	MD	US	

US-CL-CURRENT: 514/44; 424/85.5, 435/320.1, 435/325, 435/69.51, 530/351, 536/23.5

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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11. Document ID: US 20020042112 A1

L11: Entry 11 of 21 File: PGPB Apr 11, 2002

PGPUB-DOCUMENT-NUMBER: 20020042112
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020042112 A1

TITLE: DNA DIAGNOSTICS BASED ON MASS SPECTROMETRY

PUBLICATION-DATE: April 11, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
KOSTER, HUBERT	LA JOLLA	CA	US	
LITTLE, DANIEL P.	BOSTON	MA	US	
BRAUN, ANDREAS	SAN DIEGO	CA	US	
LOUGH, DAVID M.	BERWICKSHIRE	CA	GB	
XIANG, GUOBING	SAN DIEGO		US	
VAN DEN BOOM, DIRK	HAMBURG		DE	
JURINKE, CHRISTIAN	HAMBURG		DE	
RUPPERT, ANDREAS	LINDEN		DE	

US-CL-CURRENT: 435/174; 435/6, 435/91.53, 536/23.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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12. Document ID: US 20020016395 A1

L11: Entry 12 of 21 File: PGPB Feb 7, 2002

PGPUB-DOCUMENT-NUMBER: 20020016395
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020016395 A1

TITLE: Polyacetal block copolymer

PUBLICATION-DATE: February 7, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Niino, Masahiko	Sodegaura-shi		JP	
Nakamura, Hideki	Kurashiki-shi		JP	
Komatsu, Sumio	Kurashiki-shi		JP	

US-CL-CURRENT: 524/394; 524/494

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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13. Document ID: US 20010022982 A1

L11: Entry 13 of 21 File: PGPB Sep 20, 2001

PGPUB-DOCUMENT-NUMBER: 20010022982
PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010022982 A1

TITLE: Apparatus for making multilayer optical films

PUBLICATION-DATE: September 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Neavin, Terence D.	St. Paul	MN	US	
Ouderkirk, Andrew J.	Woodbury	MN	US	
Biegler, Robert M.	Woodbury	MN	US	
Liu, Yaoqi J.	Maplewood	MN	US	

US-CL-CURRENT: 425/133.5; 425/378.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Draw Desc | Image | KWIC

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14. Document ID: US 20010019182 A1

L11: Entry 14 of 21 File: PGPB Sep 6, 2001

PGPUB-DOCUMENT-NUMBER: 20010019182
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010019182 A1

TITLE: Method for making copen/pmma multilayer optical films

PUBLICATION-DATE: September 6, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Hebrink, Timothy J.	Oakdale	MN	US	
Liu, Yaoqi J.	Maplewood	MN	US	
Merrill, William Ward	White Bear Lake	MN	US	
Nerad, Bruce A.	Oakdale	MN	US	
Wheatley, John A.	Lake Elmo	MN	US	

US-CL-CURRENT: 264/1.6; 264/1.7, 264/173.14, 264/173.19

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Draw Desc | Image | KWIC

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15. Document ID: US 20010013668 A1

L11: Entry 15 of 21 File: PGPB Aug 16, 2001

PGPUB-DOCUMENT-NUMBER: 20010013668
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010013668 A1

TITLE: Method for making multilayer optical films

PUBLICATION-DATE: August 16, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Neavin, Terence D.	St. Paul	MN	US	
Ouderkirk, Andrew J.	Woodbury	MN	US	
Liu, Yaoqi J.	Maplewood	MN	US	

US-CL-CURRENT: 264/1.7; 264/173.16, 425/131.1, 425/378.1

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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16. Document ID: US 20010011779 A1

L11: Entry 16 of 21 File: PGPB Aug 9, 2001

PGPUB-DOCUMENT-NUMBER: 20010011779
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20010011779 A1

TITLE: Method for making textured multilayer optical films

PUBLICATION-DATE: August 9, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Stover, Carl A.	St. Paul	MN	US	

US-CL-CURRENT: 264/1.7; 264/167, 264/173.16

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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17. Document ID: US 6482517 B1

L11: Entry 17 of 21 File: USPT Nov 19, 2002

US-PAT-NO: 6482517
DOCUMENT-IDENTIFIER: US 6482517 B1

TITLE: Coated particles, methods of making and using

DATE-ISSUED: November 19, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Anderson; David M.	Petersburg	VA		

US-CL-CURRENT: 428/402.24; 424/422, 424/426, 424/450

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 18. Document ID: US 6472512 B1

L11: Entry 18 of 21 File: USPT Oct 29, 2002

US-PAT-NO: 6472512
DOCUMENT-IDENTIFIER: US 6472512 B1

TITLE: Keratinocyte derived interferon

DATE-ISSUED: October 29, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
LaFleur; David W.	Washington	DC		
Moore; Paul A.	Germantown	MD		
Ruben; Steven M.	Olney	MD		

US-CL-CURRENT: 530/388.2; 435/331, 435/335, 435/7.92, 530/388.15, 530/389.2, 530/391.3

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 19. Document ID: US 6433145 B1

L11: Entry 19 of 21 File: USPT Aug 13, 2002

US-PAT-NO: 6433145
DOCUMENT-IDENTIFIER: US 6433145 B1
**** See image for Certificate of Correction ****

TITLE: Keratinocyte derived interferon

DATE-ISSUED: August 13, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
LaFleur; David W.	Washington	DC		
Moore; Paul A.	Germantown	MD		
Ruben; Steven M.	Olney	MD		

US-CL-CURRENT: 530/351; 424/85.4, 435/7.1, 530/350

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 20. Document ID: US 5871805 A

L11: Entry 20 of 21 File: USPT Feb 16, 1999

US-PAT-NO: 5871805
DOCUMENT-IDENTIFIER: US 5871805 A

TITLE: Computer controlled vapor deposition processes

DATE-ISSUED: February 16, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Lemelson; Jerome	Incline Village	NV	89450	

US-CL-CURRENT: 427/8; 427/10, 427/248.1, 427/255.5, 427/585, 427/596, 427/9

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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☐ 21. Document ID: US 5568400 A

L11: Entry 21 of 21 File: USPT Oct 22, 1996

US-PAT-NO: 5568400
DOCUMENT-IDENTIFIER: US 5568400 A

TITLE: Multiplicative signal correction method and apparatus

DATE-ISSUED: October 22, 1996

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stark; Edward W.	New York	NY	10023	
Martens; Harald	Aas			NO

US-CL-CURRENT: 702/85; 702/27

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC
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Term	Documents
INSTABILITY	66106
INSTABILITIES	9460
INSTABILITYS	0
UNSTABLE	145383
UNSTABLES	5
EDDY	48709
EDDIES	4547
EDDYS	193
MODEL$4	0
MODEL	484364
MODELA	14
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L7: Entry 1 of 1 File: USPT Apr 27, 1999

DOCUMENT-IDENTIFIER: US 5898493 A
TITLE: Capillary electrophoresis-fluorescence line narrowing system (CE-FLNS) for on-line structural characterization

Brief Summary Text (2):
Capillary electrophoresis (CE) is a widely used analytical and bioanalytical separation technique. It is also finding considerable use in biomedical research with new applications continually emerging. Capillary electrophoresis has been used for analysis of amino acids, peptides, proteins, nucleic acid bases, DNA oligonucleotides and numerous organic molecules. Both small ions and large biomolecules can be separated (J. Tehrani et al., High Res. Chrom., 14, 10-14 (1991)). Electrophoresis is a powerful approach for gene mapping (R. Milofsky et al., Anal. Chem., 65, 153-157 (1993)); X. Huang et al., Anal. Chem., 64, 967-972 (1992)) and DNA sequencing (H. Swerdlow et al., Anal. Chem., 63, 2835-2841 (1991)). Recently, the chemical analysis of individual cells by CE has attracted much attention (B. Hogan et al., Anal. Chem., 64, (1992); B. Hogan et al., Trends Anal. Chem., 12, 4-9 (1993)).

Brief Summary Text (3):
Polycyclic aromatic hydrocarbons (PAH) constitute a potent class of chemical carcinogens. The ability to analyze PAH in small volumes at attomole levels opens many opportunities for studying intracellular uptake, metabolism, and carcinogen-DNA adduct formation, all of which are important factors in mutagenesis and tumorigenesis. Various protocols for separation of PAH by CE have already been established. In micellar electrokinetic capillary chromatography, introduced by Terabe et al. (S. Terabe et al., Anal. Chem., 56, 111-116 (1984); S. Terabe et al., Anal. Chem., 57, 834-839 (1985); S. Terabe et al, J. Chrom., 516, 23-31 (1990)), micelles were used as a pseudophase. Nie et al. (S. Nie et al., Anal. Chem., 65, 3571-3575 (1993)) developed an approach based on solvophobic association of PAH analytes with tetraalkylammonium ions in a mixed acetonitrile-water solvent. Yan and coworkers (T. Lee, Anal. Chem., 64, 3045-3051 (1992)) demonstrated that capillary electrochromatography can be used for separation of priority PAH. Shi and Fritz (Y. Shi et al., Anal. Chem., 67, 3023-3027 (1995); Y. Shi et al, J High Res. Chrom, 117, 713 (1994)) established that excellent separation of PAH by CE can be achieved by the addition of sodium dioctyl sulfosuccinate (DOSS) to an acetonitrile-water electrolyte. Very recently, Brown et al. (R. S. Brown et al., Anal. Chem., 68, 287-292 (1996)) described a separation method for PAH using cyclodextrin-modified CE. All these approaches are able to detect PAH at sub-femtomole levels, a detectability required, for example, in the study of PAH-induced carcinogenesis.

Brief Summary Text (4):
In CE, analyte molecules are typically probed, i.e., detected, only briefly as they traverse detection zones located either on-line or in a post-column flow cell. The narrowness of this temporal detection window effectively limits the signal to noise ratio (J. Shear et al., Anal. Chem., 65, 3708-3712 (1993)). The most widely used detection method with CE is absorbance, which is usually shot-noise limited. Fluorescence, particularly laser-induced fluorescence (LIF), has also been used for detection, outperforming absorbance in sensitivity of detection by several orders of magnitude. However, the brief time available for determination of an analyte also poses a problem for LIF detection, especially when low intensity continuous wave (CW) lasers incapable of providing high induced absorption rates are used (J. Shear

et al., Anal. Chem., 65, 2977-2982 (1993)). Zare and coworkers (J. Shear et al, Anal. Chem., 65, 3708-3712 (1993)) showed that velocity programming for increased detection zone residence times in CE is necessary to improve both the accuracy of quantitation and detection limits. The use of intense pulsed lasers in CE-LIF for the analysis of molecular analytes at ambient temperature produces a stronger detectable signal, but is accompanied by problem of analyte photodegradation.

Brief Summary Text (5):
Efforts to improve analyte resolution in CE are also important, particularly as detection sensitivity increases. In the case of CE-LIF, however, the emphasis has been on laser-induced fluorescence providing superior detection limits, i.e., analyte resolution is still provided by CE. At best, LIF with detection at ambient temperature can provide only very limited spectral resolution due to large vibronic fluorescence bandwidths (about 500 cm.sup.-1). Resolution between monomethylated isomers of a PAH would, for example, have to be provided by the physical separation process of CE.

Brief Summary Text (6):
It is well-recognized that analysis of chemically complex samples often requires a two-step analytical approach (separation followed by analyte characterization). Research involving analytical separation methods such as high performance liquid chromatography (HPLC) and CE has been greatly advanced by recent efforts to couple these separation techniques with sensitive spectroscopic methods that go beyond simple detection of molecular analytes by producing structural information about the separated analytes. For example, HPLC has been coupled with NMR spectroscopy for direct analysis of complex mixtures from both synthetic and biological origins. Interfacing CE with mass spectroscopy (MS) has been demonstrated; and capillary zone electrophoresis coupled with electrospray MS has been used for separation and subsequent detection of DNA adducts. Capillary electrochromatography has been coupled to MS for analysis of pharmaceutical drugs.

Brief Summary Text (9):
The present invention provides a system for use in capillary electrophoresis that utilizes a specially designed capillary cryostat containing an optically accessible sample chamber to facilitate low-temperature laser-induced fluorescence spectroscopic analysis of separated analytes. In addition to the capillary cryostat, the system includes a spectrally narrow excitation source, such as a laser, positioned to direct a beam of light into the interior of the capillary to induce fluorescence emission from the target species, and a wavelength-dispersive detection system positioned to detect fluorescence emission from the target species.

Brief Summary Text (19):
The method can be used to obtain non-line narrowing (NLN) spectra (preferably at 77K using liquid nitrogen as the cryogen) and fluorescence line narrowing (FLN) spectra preferably at 4.2K using liquid helium as the cryogen). These spectra can be analyzed by comparing the resulting high resolution FLN fingerprint spectra of a target species with available libraries containing FLN spectra of standard compounds to obtain structural information about the separated analytes.

Drawing Description Text (6):
FIG. 3 depicts FLN spectra of B[a]P in (a) ethanol and (b) the CE buffer, obtained at 4.2K for an excitation wavelength of 395.7 nm. Modes are labeled with their excited state vibrational frequencies in cm.sup.-1. NLN fluorescence origin bands of B[a] in ethanol and CE-buffer matrices are shown as spectra (c) and (d), respectively.

Drawing Description Text (8):
FIG. 5 depicts FLN spectra of the CE-separated analytes: 1-hydroxyprene (I), pyrene (II), B[a]A (III), B[e]P (IV). Laser excitation wavelength 365.2 nm, 369.0 nm, 3.78.0 nm, and 378.0 nm, respectively; T=4.2K. Peaks are labeled with their excited state vibrational frequencies, in cm.sup.-1.

Drawing Description Text (9):
FIG. 6 depicts FLN spectra of pyrene as a function of time (temperature) after opening the valve of the helium transfer line to the capillary cryostat;

.lambda..sub.ex =369.6 nm. Spectrum (a) was obtained at room temperature and spectra (b)-(e) were obtained 30, 35, 40, and 50 seconds, respectively, after opening the valve of the helium transfer line.

Drawing Description Text (10):
FIG. 7 depicts room temperature fluorescence electropherograms for a mixture of (a) B[a]P-d.sub.12 and (b) B[a]P using a CE buffer consisting of 40 mM sodium bis(2-ethylhexyl) sulfosuccinate and 8 mM sodium borate in acetonitrilewater (30% v/v), pH 9; capillary, 75 .mu.m i.d. and 85 cm length; applied voltage, 25 kV; current, 50 .mu.A. FLN spectra in the CE-buffer matrix at T=4.2K, .lambda..sub.ex =395.7 nm, were obtained for the CE-separated analytes (a) and (b). Spectra (c) and (d) are from the library of FLN spectra of PAHs for B[a]P-d.sub.12 and B[a]P, respectively. The FLN peaks are labeled with their S.sub.1 vibrational frequencies, in cm.sup.-1.

Drawing Description Text (11):
FIG. 8 depicts (A) room-temperature fluorescence electropherogram for a mixture of (I) B[e]P and (I) B[a]P; (B) FLN spectra of CE-separated B[e]P (I) obtained in the CE-buffer matrix at T=4.2K using .lambda..sub.ex =369.0 nm (upper) and .lambda..sub.ex =365.8 nm (lower spectrum); and (C) FLN spectra of CE-separated B[a]P (II) obtained in the CE-buffer matrix at T=4.2K using .lambda..sub.ex =395.7 nm (upper) and .lambda..sub.ex =393.8 nm (lower spectrum). The FLN peaks are labeled with their S.sub.1 vibrational frequencies, in cm.sup.-1.

Drawing Description Text (12):
FIG. 9 depicts room temperature fluorescence electropherograms (Frames A and B) obtained for two different DBP-N3Ade adduct samples. FLN spectra for the CE-separated analytes (I and II) are shown in Frames C and D using .lambda..sub.ex =416.0 nm; T=4.2K. The FLN peaks are labeled with their S.sub.1 vibrational frequencies, in cm.sup.-1. See text for discussion.

Drawing Description Text (13):
FIG. 10 depicts a room-temperature fluorescence electropherogram obtained during separation of a mixture of (II) DBP-N7Ade, (III) DPB-N1Ade, and (IV) DPB-N3Ade. An unidentified impurity is labeled as peak (I). (B) FLN spectra for the three CE-separated adducts, obtained at 4.2K using selective laser excitation at 416.0 nm. The FLN peaks are labeled with their S.sub.1 vibrational frequencies, in cm.sup.-1.

Detailed Description Text (4):
The present invention provides a CE-FLN system (e.g., FIG. 1) comprising an capillary cryostat having an optically accessible low-temperature sample chamber, a spectrally narrow excitation source, and a wavelength-dispersive detection system. The capillary cyrostat (e.g., FIG. 2) includes a capillary having a transparent annular wall that forms an interior portion suitable for placement of a target species, and a capillary encasement at least a portion of which is transparent. The transparent portion of the capillary encasement surrounds at least a portion of the transparent annular capillary wall to form the optically accessible sample chamber.

Detailed Description Text (11):
The present invention is not limited by the length of the capillary; the capillary need only be sufficiently long to effectuate the desired electrophoretic separation and accomodate the capillary cyrostat. Preferably, the capillary is 50-100 cm in length, more preferably 60-80 cm in length.

Detailed Description Text (16):
It is important that the cryostat retain structural integrity when the internal members are subjected to the selected low temperatures. Stress relief means are provided in the capillary cryostat. One preferable means includes a stress relief conduit 204 that has a shape capable of accommodating size changes during thermal contraction, while maintaining a cross-sectional area in the delivery line 202, upon cryogen entrance. One preferred configuration is a coil shape, as shown. Preferred dimensions of a suitable coil configuration include an outer diameter of about 2-3 mm, a wall thickness of about 0.25 mm of a 305 SS tubing. In particular, the stress relief conduit 204 provides axial compensation for the change in length of the internal components relative to the outer components, due to the respective

temperature exposures as described above. The compensation alleviates the predicted perpendicular strains that may be imposed on a capillary encasement 206, described below.

Detailed Description Text (32):
The spectrally narrow excitation source preferably emits a beam of light having a range of wavelengths of less than about one wavenumber. A preferred spectrally narrow excitation source is a laser, more preferably a tunable laser. The laser used reflects the excitation wavelength needed to excite the analyte of interest. The laser can be either a continuous wave (CW) laser or a pulsed laser. A nonexpressive diode can also be easily included in the CE-FLN system. An excimer pumped-dye laser is particularly preferred. For example, an excimer (XeCl gas) pumped dye laser can be used for analysis of analytes that absorb in the 330-900 mn region; other gases, such as Kr, can be used for analysis of analytes that absorb in the 310-1000 nm range. The average power density of the laser preferably ranges from 1-100 mW/cm.sup.2.

Detailed Description Text (40):
Optionally, the detection step includes the acquisition of non-line-narrowed (NLN) fluorescence spectra, preferably using liquid nitrogen (77K) as the cryogen, to obtain information concerning the position (wavelength) of the fluorescence (0,0) band and the vibronic band structure of CE-separated analytes. Knowledge of the fluorescence origin band position (from the NLN spectra) is helpful in selecting the appropriate laser excitation wavelengths for subsequent FLN characterization of the analyte. Acquisition of high resolution spectra using FLNS, preferably using liquid helium as the cryogen (4.2K), preferably follows. In a preferred embodiment of the method, FLN spectra are obtained for several excitation wavelengths (preferably 6-8 wavelengths) to obtain all excited state vibrational frequencies. When multiple wavelengths are used, each excitation wavelength provides a unique fingerprint. Structural characterization is obtained by a comparison of these spectra with available libraries of FLN spectra of standards.

Detailed Description Text (41):
The present invention is well-suited for distinguishing components of complex systems, as is demonstrated by the following examples. Other examples for use of the FLN-CE apparatus of the invention include rapid detection and high resolution structural identification of the chemical compounds formed in the reaction of cellular macromolecules with the electrophilic metabolites of aromatic hydrocarbons and related chemicals. Many other important applications can be envisioned, such as the study of the relationship between adduct conformation and stereochemistry, studies of the effect of the flanking bases on the adduct structure of DNA hotspots, and analysis of isomers and other closely related compounds. Due to the sub-femtomole detection level of the present invention, many challenging problems in biological, medical, and forensic sciences can be addressed. There is, for example, mounting evidence that depurinating adducts may be responsible for tumor initiation. The present invention can be used to characterize depurinating nucleoside adducts in urine and/or supernatant form cell ensembles in vitro and in vivo. Thus, use of the present invention in broad screening applications to detect depurinating DNA adducts may prove to be very important for cancer treatment and prevention.

Detailed Description Text (45):
A Crystal 300 Series modular CE system (model 310, ATI Unicam, Boston, Mass.) was used for electrophoretic separations. Absorption electropherograms were recorded using an ATI Unicam model 4880 Chromatography Data Handling system, with detection at 254 nm. UV-transparent fused silica capillary tubing (Polymicro Technologies, Phoenix, Ariz.) was 75 .mu.m ID. For the CE-LIF experiments, a 95 cm long capillary was used, with the absorbance detector positioned 40 cm from the capillary inlet and the capillary cryostat (CC) approximately 85 cm from the inlet. For this arrangement, analyte peaks are less well resolved in absorbance than fluorescence, simply because the absorbance detector is located upstream from the CC.

Detailed Description Text (48):
The instrumentation used for low temperature laser-excited fluorescence spectroscopy was as described in [R. Jankowiak et al., Chem. Res. Toxicol. 1991, 4, 256-269]. Briefly, the excitation source was a Lambda Physik (Acton, Mass.) Lextra XeCl

excimer laser--FL-2002 dye laser system. CE-separated analytes were probed with the excimer laser under non-line-narrowing (NLN) conditions (77K, 308 nm excitation) or with the dye laser under line-narrowing (FLN) conditions (4.2K, S.sub.1 .rarw.S.sub.0 excitation). Fluorescence was collected at a right angle to the laser excitation beam and dispersed by a McPherson (Acton, Mass.) model 2061 1-m monochromator. For NLN measurements, a resolution of 1.3 nm (150 G/mm grating and 200 .mu.m entrance slit) was used, providing a spectral window of approximately 160 nm for a Princeton Instruments (Trenton, N.J.) IRY-1024/GRB intensified diode array detector. For FLN spectra, a resolution of 0.08 nm (2400 G/mm grating and 200 .mu.m slit) was used, providing an about 10 nm window. The diode array was operated in a gated detection mode, using the output of a reference photodiode to trigger a Princeton Instruments FG-100 high voltage pulse generator. The spectra presented here were acquired using a 40 ns delay and a 200 ns gate width; the laser repetition rate was 10 Hz.

Detailed Description Text (51):
The CC was attached to a translation stage (model TM-200-SM and model 201 controller, New England Affiliated Technologies, Lawrence, Mass.). Translation of the CC and capillary in the direction of the capillary axis allowed the separated analytes to be sequentially characterized by fluorescence spectroscopy, as the capillary is translated through the laser excitation region. The length of the CC (22 cm) and its quartz cell (7 cm optical window) were greater than the travel distance of the translation stage (5 cm); if the 5 cm automated translation proved insufficient, the frozen capillary was manually positioned to a new location. Fluorescence is collected at right angle with respect to the excitation laser beam. To discriminate against scattered and reflected laser light, the CC was tilted by 20.degree.. Further discrimination against scattered laser light and background fluorescence from the capillary walls was obtained by spatial filtering.

Detailed Description Text (54):
An important concern was whether the acetonitrile-water-based buffer with added DOSS would form the necessary disordered glassy matrix. Even if it did, there was a serious question whether its instability would lead to sudden and violent cracking which, in turn, would destroy the capillary. Neither acetonitrile or water by themselves form clear glasses under normal cooling conditions [J. D. Winefordner, et al., Anal. Chem. 1963, 35, 2211-2212]. In fact, for water the transition to the glassy state (glass transition temperature of 135K.) is frustrated by formation of hexagonal ice upon solidification. (This can be circumvented by hyperquenching at a rate of 10.sup.6 -10.sup.7 Ks.sup.-1 [W-H. et al., J Phys. Chem. 1995, 99, 7300-7310].) Nevertheless, it was found that the buffer in the capillary consistently formed a glassy matrix. Possibly this response can be attributed to the presence of salts (buffer), which are known to assist in the formation of the glassy state [C. A. Angell et al., Chem. Phys. 1970, 52, 1058-1068], and/or the small internal diameter of the capillary combined with its very low thermal capacity, which allow for quite rapid cooling.

Detailed Description Text (55):
That the frozen buffer matrix is highly structurally disordered was confirmed by the NLN and FLN spectra. Profiles (c) and (d) of FIG. 3 represent the non-line-narrowed (77K) fluorescence origin bands of B[a]P in an ethanol glass and the buffer matrix, respectively. The origin band for the buffer is slightly red-shifted (0.3 nm) and significantly broader. The latter indicates that the structural heterogeneity experienced by B[a]P in the buffer matrix is more severe than in the ethanol glass. This was also found to be the case for the other PAH studied. Spectra (a) and (b) are 4.2K vibronically-excited FLN spectra of B[a]P obtained with an excitation wavelength of 395.7 nm in the ethanol glass and buffer matrix, respectively. The bands (zero-phonon lines) are labeled by their excited state (S.sub.1) vibrational frequencies. Within experimental uncertainty, .+-.2 cm.sup.-1, they are identical for both hosts. The slight difference in the vibronic intensity distributions is the result of the larger inhomogeneous broadening for the buffer matrix and the small displacement between the fluorescence origin bands, spectra (c) and (d).

Detailed Description Text (56):
CE-FLN (NLN) Analysis of a Polyaromatic Hydrocarbon (PAH) Mixture

Detailed Description Text (62):
The NLN spectra do not provide sufficient detail to distinguish isomeric and other closely related compounds. Spectroscopic structural information can be obtained, however, from FLN spectra acquired using selective laser excitation at liquid helium temperature. Representative FLN spectra for CE-separated 1-hydroxypyrene, pyrene, B[a]A, and B[e]P are shown in FIG. 5. The spectra were obtained using excitation wavelengths of 369.0, 365.2, 378.0, and 378.0 nm, respectively. (An FLN spectrum for CE-separated B[a]P is identical to that shown in FIG. 3, spectrum (b), and therefore has not been included here.) The peaks in the FLN spectra are labeled with their excited state vibrational frequencies, in cm.sup.-1. Each of these spectra provides a "fingerprint" fluorescence spectrum that can be used for spectral identification of the compound. Spectral resolution of 1-hydroxypyrene and B[a]A, difficult to achieve based on their NLN spectra, is trivial based on their FLN spectra because of differences in their excited state vibrational modes (compare spectra I and III in FIG. 5, acquired using the same excitation wavelength). By changing the laser excitation wavelength, a series of FLN spectra can be acquired, effectively characterizing all the excited state vibrational modes of the analyte. The series of "fingerprint" FLN spectra for a given compound provide the basis on which detailed spectroscopic structural information can be acquired by FLNS.

Detailed Description Text (66):
The components of the CE-FLN were substantially as described in Example I. Briefly, the system includes a modular CE apparatus (ATI Unicam model 310) coupled to a capillary cryostat (CC) and high-resolution spectrometer system. The CC is formed by a double-walled quartz cell with inlet and return lines for introducing liquid nitrogen or liquid helium; the outer portion of the CC is evacuated. The capillary, positioned in the central region of the CC, can be cooled to 77K or 4.2K after the CE separation is complete, by a continuous flow of liquid nitrogen or liquid helium through the cryostat.

Detailed Description Text (68):
CE-separated analytes were characterized by low-temperature fluorescence spectroscopy. For FLN measurements, a 1 m focal-length monochromator (McPherson model 2061) was equipped with a 2400 G/mm grating, providing a resolution of 0.8 nm and a spectral window of approximately 10 nm. An excimer-pumped dye laser system (Lambda Physik LEXtra excimer and FL-2002 dye laser) was used for excitation. FLN spectra were generated using a series of laser wavelengths that selectively excite regions of the S.sub.1 .rarw.S.sub.0 transition of the analyte, each of which reveals a portion of the excited-state vibrational frequencies of the molecule. Fluorescence was collected at a right angle to the laser excitation beam, dispersed by the monochromator, and detected by a photodiode array (Princeton Instruments IRY-1024/GRB intensified array); the diode array was operated in a gated detection mode, using the output of a photodiode to trigger a high-voltage pulse generator (Princeton Instruments FG-100). To discriminate against scattered and reflected laser light, the CC was tilted about 20.degree. with respect to the laser beam. The CC was attached to a translation stage (New England Affiliated Technologies model TM-200-SM); translation of the CC and capillary allowed the CE-separated analytes to be sequentially characterized by NLN and FLN spectroscopy.

Detailed Description Text (70):
The small dimensions of the capillary cryostat (4 mm i.d. and 22 cm in length) and the low thermal capacity of the capillary section to be cooled was expected to permit rapid cooling of analytes after the CE separation is complete. To evaluate the actual rate of cooling, fluorescence spectra of pyrene were acquired as a function of time after opening the valve of the helium transfer line to the CC (FIG. 6.) Spectrum (a) was obtained at room temperature, and spectra (b)-(e) were obtained 30, 35, 40, and 50 seconds after opening the valve. The five spectra, plotted using the same y-axis scale expansion (offset for clarity), illustrate a very fast cooling rate and a significant increase in fluorescence quantum yield with decreasing temperature. Spectrum (e), obtained at 50 seconds, is identical to the FLN spectrum of pyrene obtained in a regular helium immersion cryostat. This clearly indicates that the capillary and CC can be cooled to 4.2K in less than 1 minute. As a result, after the separation is complete, the CE-separated analytes can be rapidly frozen in place in the CC, leading to very minimal band dispersion. Once frozen, arbitrary detection times can be used to completely characterize the separated analytes. When

the fluorescence analysis is complete, efficient warming of the CC and capillary can be achieved by closing the valve of the helium transfer line and introducing (warm) helium gas into the CC.

Detailed Description Text (72):
CE-FLNS Analysis of Structurally Similar Compounds: Perprotio- and Perdeuterio-benzo[a]pyrenes

Detailed Description Text (74):
FLN spectra for CE-separated peaks (a) and (b) using selective laser excitation at 395.7 mn at 4.2K are shown in FIG. 7, Frames B (spectrum a) and C (spectrum b), respectively. While some of the excited-state vibrational modes are similar in the two spectra, there are some obvious differences. For B[a]P-d.sub.12, there are strong modes at 353, 493, and 558 cm.sup.-1 ; for B[a]P, the strong modes are at 510 and 580 cm.sup.-1. Thus, spectra (a) and (b) are clearly distinguishable with a different pattern of vibrational frequencies and intensities, revealing differences in analyte composition. These data (and other FLN spectra obtained using different laser excitation wavelengths) can be used as "fingerprints" for spectral identification of a compound. The identity of CE-separated analytes is obtained by comparison of the FLN spectra acquired with the available library of FLN spectra for PAHs. Comparison of the CE-FLN spectra in FIG. 7 shows that spectrum (a) is virtually indistinguishable from spectrum (c), the B[a]P-d.sub.12 standard, and spectrum (b) is identical to spectrum (d), the B[a]P standard. Therefore, peaks (a) and (b) of the electropherogram can be unambiguously assigned as deuterated B[a]P and protonated B[a]P, respectively. Thus, deuteration leads to a blue-shift in the fluorescence spectra of PAHs, as has been shown for perylene and B[a]P in n-octane Shpol'skii matrices. The fact that the migration time for B[a]P-d.sub.12 is shorter than that for B[a]P in FIG. 7A is consistent with previous MECC separations of dansylated methylamine and dansylated methyl-d.sub.3 -amine, and indicates that the deuterated analog is more hydrophilic than the protonated compound.

Detailed Description Text (76):
Analysis of Incompletely Separated Analytes

Detailed Description Text (77):
An example of the CE-FLN analysis of incompletely resolved analytes is shown in FIG. 8 for a mixture of benzo[e]pyrene (B[e]P) and B[a]P. See Example II for description of the experimental procedures used. The fluorescence electropherogram in Frame A shows that these two isomers are not baseline-resolved in the CE separation. Low-temperature fluorescence detection revealed the presence of two analytes via two distinct fluorescence origin bands at 376 nm and 403 nm, respectively. This would also be the case if the analytes were not separated (i.e. if B[e]P and B[a]P comigrated). CE-FLN spectra for B[e]P and B[a]P are shown in FIG. 8, Frames B and C, respectively. Since the (0,0) band for B[e]P is located at 376 nm, selective laser excitation in the range of approximately 371-357 nm (.about.350-1400 cm.sup.-1 above the origin band) can be used to generate FLN spectra for B[e]P; two of these are shown in FIG. 8B. For B[a]P, which has its (0,0) band at 403 nm, selective laser excitation in the 397-381 nm range can be used to generate FLN spectra; two of these are shown in FIG. 4C. By changing the laser excitation wavelength, a series of FLN spectra can be obtained that map out all of the excited-state vibrational frequencies of the molecule. It is this series of fingerprint FLN spectra that provides selective, unambiguous structural characterization of fluorescent analytes. It is thus demonstrated that in some cases the selectivity of FLNS alone is sufficient to characterize mixtures of analytes, even if they are not completely resolved in the CE separation.

Detailed Description Text (80):
An application of the CE-FLNS system in the area of confirmation of analyte purity is shown in FIG. 9. See Example II for a description of the experimental procedures used. Fluorescence electropherograms for two different samples of a dibenzo[a,l]pyrene-adenine adduct (3-(dibenzo[a,l]pyren-10-yl)-adenine; DBP-N3Ade) are shown in Frames A and B. Both of these samples had been subjected to purification by two-dimensional HPLC and were then analyzed by CE-FLNS. For sample 1 (Frame A), there are two major peaks (I and II) plus a number of smaller, minor contaminants. For sample 2 (Frame B), the electropherogram shows the presence of

only one prominent peak (II). FLN spectra obtained at 4.2K using 416.0 nm excitation for the major peaks are shown in Frames C and D. The FLN spectra for analyte II in both samples match the spectra of a DBP-N3Ade standard adduct, whose structure had been confirmed by MS. Thus analyte II can be assigned as the DBP-N3Ade adduct. The FLN spectra for analyte I show a different pattern of vibrational frequencies and intensities, so analyte I cannot be DBP-N3Ade. Although the identity of analyte I has not been determined, it is more hydrophilic than DBP-N3Ade (based on the CE retention times) yet possesses a substituted DBP fluorescent chromophore (based on the FLN spectra). This example shows that on-line characterization by CE-FLNS affords a number of advantages compared to HPLC separation, fraction collection, and subsequent (off-line) analysis. Imprecise timing of fraction collection, leading to impure HPLC fractions, is likely responsible for the differences in these two DBP N3Ade samples. As shown in FIG. 9, on-line analysis by CE-FLNS, combining the high resolving power of CE and the spectral selectivity of FLNS, provides an excellent method to determine the purity of analytes and analyte fractions.

Detailed Description Text (82):
Analysis of Structurally Similar DNA Adducts

Detailed Description Text (83):
Another example of the selective detection provided by the combination of the separation power of CE and the spectral selectivity of FLNS is shown in FIG. 10 for the analysis of three dibenzo[a,l]pyrene-adenine adducts, DBP-N1Ade (1-(dibenzo[al]pyren-10-yl)-adenine), DBP-N3Ade (3-(dibenzo[a,l]pyren-10-yl)-adenine), and DBP-N7Ade (7-(dibenzo[a,l]pyren-10-yl)-adenine). See Example II for the experimental procedures used. Since these three adducts differ only in the position at which binding of DBP to adenine occurs, they are structurally very similar. Previous FLNS analysis of these three DBP-adenine adducts resulted in selective identification of the individual adducts; that is, the individual adducts could be distinguished (unpublished results). However, a mixture of these adducts could not be resolved by FLNS alone. By combining CE (for separation) and FLNS (for spectral characterization), a mixture of these three adducts can be resolved, as shown in FIG. 10. The room-temperature fluorescence electropherogram obtained during CE separation of the DBP-adenine adduct mixture is shown in Frame A. Four peaks (labeled I, II, III, and IV) are observed, indicating that one is an impurity present in the mixture. CE-FLN spectra obtained for the three major separated analytes (II, III, and IV) are shown in FIG. 10B. These spectra were obtained in the CE buffer matrix at 4.2K, using selective laser excitation at 416.0 nm. Comparison of the FLN spectra in FIG. 10 with the library of FLN spectra generated for DNA adducts obtained in the CE buffer matrix in a regular helium immersion dewar showed that peaks II, III, and IV correspond to DBP-N7Ade, DBP-N1Ade, and DBP-N3Ade, respectively. Since the adducts of interest were identified, no attempt was made to characterize the impurity peak (I).

Other Reference Publication (14):
L. Licklider et al., "On-Line Microreactors/Capillary Electrophoresis/Mass Spectrometry for the Analysis of Proteins and Peptides", Anal. Chem., 67, pp. 4170-4177 (1995).

Other Reference Publication (15):
I.S. Lurie, "Analysis of Seized Drugs by Capillary Electrophoresis", Analysis of Addictive and Misused Drugs, edited by John A. Adamovics; Pub. by Marcel Dekker, Inc., New York, NY (1995), pp. 151-219.

Other Reference Publication (42):
D. Chen et al., "Single-Molecule Detection in Capillary Electrophoresis: Molecular Shot Noise as a Fundamental Limit to Chemical Analysis", Anal. Chem., 68, pp. 690-696 (1996).

Other Reference Publication (46):
B. Hogan et al., "Single-cell Analysis at the Level of a Single Human Erythrocyte", Trends in Analytical Chemistry, 12, pp. 4-9 (1993).

CLAIMS:

26. The method of claim 25 step (f) comprises obtaining at least one FLN spectrum, and wherein the method further comprises step (g) analyzing the at least one FLN spectrum to obtain structural information about the fluorescent target species.

29. The method of claim 28 further comprising (k) analyzing the fluorescence emissions detected in step (f) and step (j) to obtain structural information about the target species.

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TITLE: Capillary electrophoresis-fluorescence line narrowing system (CE-FLNS) for on-line structural characterization

DATE-ISSUED: April 27, 1999

INVENTOR-INFORMATION:

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L6	L5 and (transfer$4)	6091	L6
L5	L4 and (instability or unstable or inhomogeneit$4 or eddy or disturb$7 or interfer$6)	7761	L5
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L9	L8 and ((analysis or analyz$6 or process$4) with (instability or unstable or inhomogeneit$4 or eddy or disturb$7 or interfer$6))	811	L9
L8	L6 and (cool$4 or cyro$9)	3405	L8
L7	L6 and (cyrostat)	1	L7
L6	L5 and (transfer$4)	6091	L6
L5	L4 and (instability or unstable or inhomogeneit$4 or eddy or disturb$7 or interfer$6)	7761	L5
L4	L3 and (analysis or analyz$6 or process$4)	12741	L4
L3	L2 and (vibrat$7 or strss or strain or damp$7 or stiffness)	12983	L3
L2	L1 and (model$4 or simulat$5)	41813	L2
L1	((magnetic adj resonance) or MRI or NMR)	156970	L1

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